Initial	Date
[illegible]	2/28/07
DMC	2/27/07

BA WTR
WR ND
Mail Stop 60189

FEB 28 2007

Memorandum

To: Project Leader, Tewaukon National Wildlife Refuge

From: Chief, Division of Water Resources S/ MEGAN ESTEP

Subject: 2006-2007 Annual Water Use Report/Management Plan

The subject reports for Tewaukon and Storm Lake National Wildlife Refuges have been reviewed and approved as submitted. The 2007 Water Management Plan for Tewaukon NWR will be forwarded to the North Dakota State Engineer as the 2007 Operation Plan.

The figures for the Declaration of Filing for Storm Lake NWR are incorrect in your report and should be corrected on future reports. Storage should be 729 acre-feet and seasonal use is 516 acre-feet.

Attached is the signed approval page for your files.

Attachment

bcc: WTR rf

WTR:CCordova:cc:02/26/2007
I:\WATERUSE\ND\TEWAUKON NWR\wateruse_06.doc

Signature Page

2006 Water Use Report
2007 Water Management Plan

Submitted By: _____ Date: 2/5/07
Jeffrey King, Project Leader

Reviewed By: _____ Date: 2/27/07
Refuges Supervisor (ND/SD)

Approved By: _____ Date: 2/28/07
Chief, Water Resources Division

Concurrence: _____

Tewaukon National Wildlife Refuge Complex
2006 Water Use Report
2007 Water Management Plan

REFUGE MANAGED WETLANDS

CCP Refuge 1.5 Objective: Annually provide for approximately 20% in dry, 20% in shallow, 20% mid-depth, and 20% open water wetland conditions on Refuge managed wetlands and manage remaining 20% as a reserve to adjust to local climatic and habitat conditions.

1. **List of Water Rights**
   See Appendix 1.

2. **Water Use - 2006**

Month	Temperatures		Precipitation	
	Low (Average)	High (Average)	Rain	Snow
January	11	24	0	0.25
February	12	18	0	0.45
March	24	48	1.29	0
April	35	63	2.21	0
May	42	66	2.74	0
June	57	73	3.09	0
July	65	84	1.73	0
August	69	82	5.47	0
September	45	75	3.94	0
October	30	64	1.94	0
November	31	44	0.05	0
December	20	34	0	0.87
Totals:			22.46	1.57

Data loggers will be installed in Pools 1, 2, 4, 7, 8, 11, 14, 16A in 2007.

Pool 1 (Lake Tewaukon): Pool filled to 1148.70 on February 8th. Heavy rains and run-off pushed lake to high of 1150.46 on April 4th. On July 10th the water levels on the Lake were at 1147.68. Freeze up at 1147.68 in late December.

Parker Bay (east end of Lake Tewaukon): Only local inflows came through LaBelle Creek. Boards were added on March 30th to maintain a 3 foot water depth. Freeze up elevation was 1147.68.

Pool 2 (Cutler Marsh): Pool 2 dam held water between 1149.97 and 1153.82 until April 3rd and then dropped to concentrate carp in Pool 1. It was then dropped again to promote vegetation growth . The pool froze at 1147.30.

Pool 2A: Pool 2A followed Pool 2 levels. Elevations started the year at 1150 and then went dry.

Pool 3 (Maka Pool): Elevation at 1158 on July 1st. Boards pulled to keep pool drawn down to facilitate emergent growth. Water below gauge most of the year. Freeze up occurred at 1150.00

Pool 3A: Pool followed Pool 3 elevations.

Nickeson Bottoms: This pool only received local inflows. Tried to drop water levels through evaporation. Attempted to remove water from the 19th of April through the fall. Freeze up level was approximately 1154.

Pool 4 (River Pool): Pool 4 filled to operating level on March 31st of 1158.85. This elevation kept water off of neighboring farmer's field. The water level was difficult to maintain due to high inflows. Boards pulled on approximately November 15th for winter draw down. Freeze up at 1155.90.

Pool 5: Pool filled to 1162 on April 1st. Freeze up occurred at 1159.5.

Pool 5A: Pool was filled to approximately 1164 on April 1st. Freeze up elevation 1159.7

Pool 6: Structure and dike breached. Pool dry at freeze up at 1163.

Pool 7: Tried to maintain water level at 1172 all year. Freeze-up was at 1169.78.

Pool 7A: Attempted to keep 7A at 1172 to dry with only local inflows. Pool froze up dry at 1172.

Pool 8 (Hepi Lake): Inflow from ditch to south flowed out through the north structure to Pool 9. Freeze up 1172. No water was needed this year for pools 7, 5, and 5A.

Pool 9: Inflows from Pool 8 filled the pool to approximately 1174. At that elevation water outflows into Pool 4. Freeze up at approximately 1164

Pool 10: Pool began year at 1173 there was no flow into this pool except local precipitation. Freeze up occurred at approximately 1174

Pool 11 (West White Lake): This pool peaked at 1150.67 on April 20th from high amounts of precipitation and local run-off. Water drained through 11 into Pool 12 into Pool 2 and into the Wild Rice River. Freeze up occurred at 1147

Pool 12 (East White Lake): Pool 12 received inflows from Pool 11 and drained into Pool 2 to the Wild Rice River. By freeze up, Pool 12 was at approximately 1147.

Pool 13 (Mann Lake): Local runoff from the high amount of precipitation came into Pool 13. Evaporation had lowered it to approximately 1205 at freeze up.

Pool 14 (Sprague Lake): The lake peaked at 1217.08 on April 11. Tried to maintain full pool at 1214.50 but it was difficult due to a leak that developed in the dike in May. Freeze up at approximately 1212.50.

Pool 16 (Horseshoe Slough Group):
Only local inflows – keep out water from Wild Rice River

Pool A – Freeze up occurred at 1205.86
Pool B – Freeze up at 1206.05
Pool C – Freeze up at 1205.86
B West – Freeze up at 1206
B North – Freeze up at 1206.
C North – Freeze up at 1206
C South and C East – Freeze up at 1208

3. **Impoundment Data**

Please see the attached chart (Appendix 2) for capacities for each pool at various elevations. No formal inflow/outflow records were maintained.

4. **2007 Plans**
CCP Refuge 1.2 Objective

Pool 1 (Lake Tewaukon): Fill this pool to 1148 and maintain that elevation for the fisheries and resting area for migratory birds in the spring and fall.

Parker Bay (east end of Lake Tewaukon): Maintain 2-3 feet of depth. No inflows to encourage emergent and submergent vegetation.

Pool 2 (Cutler Marsh): This pool will be maintained at 1148.

Pool 2A: This pool will be raised to 1154.

Pool 3 (Maka Pool): Maintain this pool at 1154.

Pool 3A: Maintain this pool in concert with Pool 3 at 1154.

Nickeson Bottoms: Continue to drop water through evaporation to promote emergent vegetation.

Pool 4 (River Pool): Fill pool to 1158.85.

Pool 5: Try to fill and maintain elevation at 1162 if inflows allow.

Pool 5A: Maintain water at 3-4 feet (elevation 1164).

Pool 6: Dike is currently breached. We will be repairing in 2007. Pool will be filled if possible in 2008

Pool 7: Fill to 2-3 feet (1172).

Pool 7A: Fill if possible to 1178.

Pool 8 (Hepi Lake): As spring runoff increases the pool level, water should be diverted to fill 7A and will be lowered to 1170.

Pool 9: Maintain a 2 - 3 foot level in this pool (no greater than 1164.5) to allow for vegetative growth.

Pool 10: No inflows. Maintain an elevation of 1172.25 to encourage vegetation growth.

Pool 11 (West White Lake): Allow water levels to drop to promote emergent vegetation growth, no inflows.

Pool 12 (East White Lake): Allow this pool to drop as low as possible through evaporation and restricting inflows.

Pool 13 (Mann Lake): This pool will be allowed to dry up to encourage emergent vegetation. No inflows.

Pool 14 (Sprague Lake): Maintain elevation at 1212.50 to facilitate construction and try to refill in fall to 1214.25.

Pool 16 (Horseshoe Slough): Water levels in these pools will be allowed to continue to drop to reestablish vegetation and dry out the pools. No inflows.

5. Location Map

See attached Refuge map (Figure 1 and 2) with all the management pools delineated.

Figure 1: Tewaukon Unit Managed Wetlands

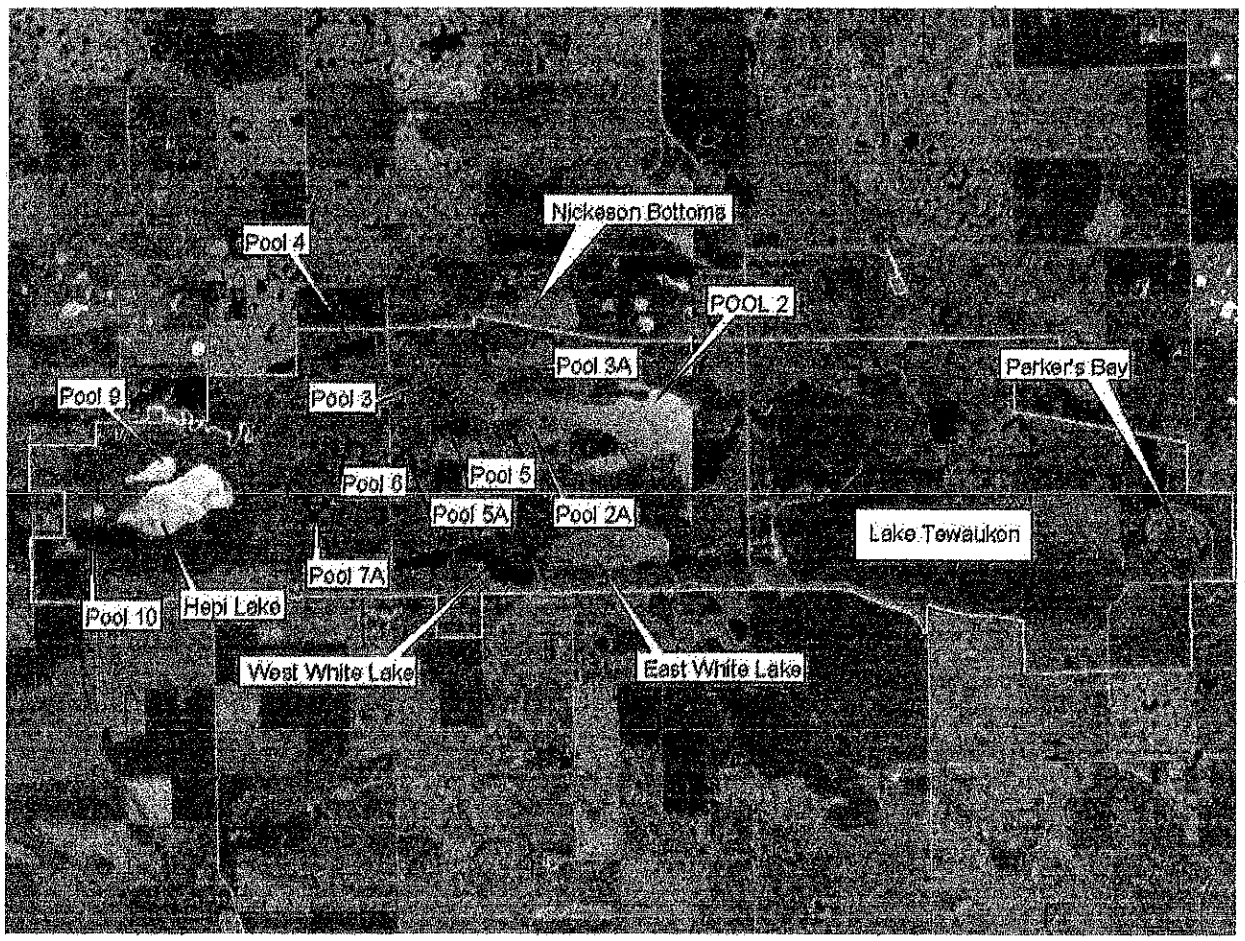
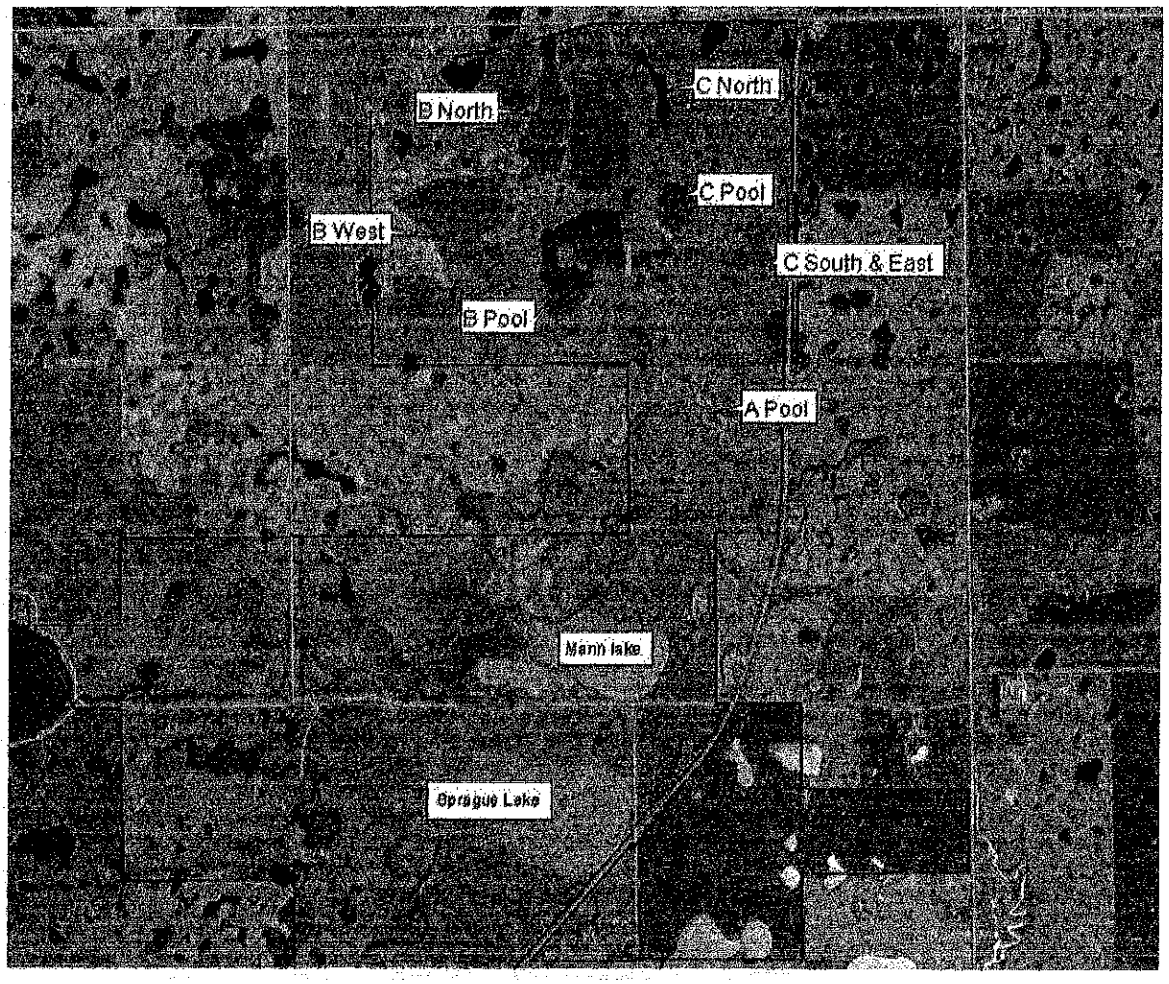


Figure 2: Sprague Lake Unit Managed Wetlands



Appendix 1

List of Water Rights

Water Right Filing No. 57: Declaration of Filing dated September 1, 1934 claimed 104 surface acres, for 397 acre-feet storage and 312 acre-feet seasonal use for Clouds Lake (Pool 8) now called Hepi Lake from unnamed tributary to Wild Rice River. Listed on the same sheet as Lake Tewaukon/White Lake, as per RO(EN) Marshall Fox's 11-14-83 memo. Water use in pools 5 through 10 is covered under this right, with Hepi Lake to be drawn down to fill these pools.

Water Right Filing No. 64: Declaration of Filing dated September 1, 1934, for Lake Tewaukon and East and West White Lake (including Cutler Marsh), 1417 surface acres, for 7198 acre-feet storage, 4251 acre-feet seasonal from Wild Rice River and unnamed tributary.

Permit #1261: 4852 acre-feet storage and 2287 acre-feet seasonal use, for a total of 7139 acre-feet from the Wild Rice River for fish and wildlife use. This permit covers additional storage and seasonal use in Lake Tewaukon, Cutlers Marsh and West White Lake; 409 acre-feet seasonal use to replace water to be diverted from the watershed by Sargent County Water Conservation District project; and total storage and seasonal use for Pools 3 and 4. Priority date December 28, 1964.

Tewaukon NWR #1262: 1,130 acre-feet yearly (635 acre-feet storage and 495 acre-feet seasonal use) for Sprague Lake, dated December 28, 1964, diversion from an unnamed creek in the SE1/4 NW1/4, Sec. 2.

Tewaukon NWR #1263: 686 acre-feet yearly for Mann Lake (total of 236 acre-feet comprised of 107 acre-feet storage and 129 acre-feet seasonal use) and Horseshoe Slough (total of 450 acre-feet comprised of 270 acre-feet storage and 180 acre-feet seasonal use) dated December 28, 1964, diversion from the Wild Rice River.

Tewaukon NWR #3816 Nickeson Tract: 571 acre-feet (474 acre-feet storage, 97 acre-feet annual use) for the Nickeson Bottoms, a tract jointly owned by the ND Game and Fish Department, US Bureau of Reclamation and US Fish and Wildlife Service (FWS). Diversion is from the Wild Rice River, W ½ Section 27, T. 130 N., LTL, R. 54 W. Priority date August 15, 1985. Received perfected water permit on August 14, 1997. Recorded in the Register of Deeds, Sargent County on March 3, 1998.

In December, the Service submitted an application for prescriptive water rights pursuant to the provisions of State Senate Bill No. 2182 for 859 acre feet.

Appendix 2

Pools, Elevations and Acres

Pool No. & Name	January 1, 2006			December 31, 2006		
	Elevation	Surface Acres *	Volume (acre ft.)*	Elevation	Surface Acres *	Volume (acre ft.) *
Pool 1 - Tewaukon	1148.54	1064	8948	1147.68	1056	8036
- Parker's Bay	1148.50	87	328	1147.68		
Pool 2 - Cutler's Marsh	1148.35	201	447	1147.30	149	267
Pool 2A	1148.35	0	0	Dry	0	0
Pool 3 - Maka Pool	1150.75	30	61	1150.00		
Pool 3A	1150.75	0	0	1150.75	0	0
Nickeson Bottoms	1154.0	-	-	1154.0	-	-
Pool 4 - River Pool	1153.0	0	0	1155.9	25	30
Pool 5	1162.0	5	15	1159.5	3	5
Pool 5A	1164.0	9	16	1159.7	0	0
Pool 6	1163.0	0	0	1163.0	0	0
Pool 7	1172.0	15	21	1169.78	3	2
Pool 7A	1173.0	0	0	1172.0	0	0
Pool 8 - Hepi Lake	1175.0	101	455	1172.0	86	174
Pool 9	1167.0	12	47	1164.0	9	15
Pool 10	1175.0	7	18	1174.0	6	12
Pool 11 - West White Lake	1148.45	51	78	1147.0	26	23
Pool 12 - East White Lake	1148.45	103	535	1147.0	98	389
Pool 13 - Mann Lake	1204.2	38	42	1205.0	42	75
Pool 14 - Sprague Lake	1214.2	196	1669	1212.50	187	1343
Pool 16 - Horseshoe Slough						
- Pool 1 (A Pool)	1206.64	33	26	1205.86	13	8
- Pool 2 (B Pool)	1206.64	48	150	1206.05	45	122
- Pool 3 (C Pool)	1206.64	11	37	1205.86	10	29
- Pool 4 (B West)	1205.64	42	99	1206.0	45	115
- Pool 5 (B North)	1206.64	28	49	1206.0	23	32
- Pool 6 (C North)	1207.35	11	11	1206.0	4	1
- Pool 7 (C South & C East)	1207.0	22	51	1208.0	26	75

Appendix 3

WATER USE REPORT/MANAGEMENT PLAN
SHORT FORM

Storm Lake NWR, Sargent County
Station Name

Summer 2004
Date of Inspection

Declaration of Filing: 8/30/1937
Water Right No.
Several
(522 acre-feet storage)
(900 acre-feet seasonal)

Drainage ditch (legal)
Sources(s)

Means of Diversion Uncontrolled
Rate Unknown

Water Diverted: Yes ____ No _X_

Water Level est 654 acre-feet
(Elevation or Est. Storage Amount)

* Impoundment(s): Yes ___ No _X_
* Well(s)
Free Flowing none gpm
Pumped_____ gpm

Surface irrigation_____
(Crop) _____
Fish & Wildlife __X__virtually no public use
Stock_____
Domestic_____

Overall Climatic Conditions: Since 2000 the amount of precipitation has decreased, the region seems to be going into a drier cycle. The area has seen periodic times of heavy rain with extended dry periods to follow. Snow accumulations have continued to be low.

Condition of Facilities: A diversion dam at the head of the feed ditch serving Storm Lake washed out well before 1976. The town dug a ditch beside the existing structure to allow for flood waters to move out of the town. At the end of 1997 the town placed a culvert with flap gate at an agreed elevation by a special use permit with the Refuge manager. The culvert is well above the existing structure and will allow flood waters to move out without impacting the water right. The ditch through the golf course was also cleaned in 1997 through a special use permit to facilitate removal of flood waters. At that time the Golf Course placed two new bridges on the fee title property without notification of the Refuge. An agreement with the Service was signed to mitigate the mowing of the fee title property with no mow areas along the golf course edges was signed in 1999. In 2006 an agreement between the US Fish & Wildlife Service and the city of Milnor was signed to lower an existing culvert. The culvert maintains the lake elevation and will be maintained at a five foot elevation.

Proposed Water Program: No water management capability is present. Water runs down the ditch into the lake to an unknown degree each spring. Water did fill Storm Lake in 1993. High waters and overland flooding have resulted in the feeder ditch becoming an outlet for Storm Lake water into the legal drain.

Comments: The lake serves as a waterfowl loafing site by Canada geese, canvasbacks, redheads, lesser scaup, mallards, teal, gadwalls during low water years. Water levels fluctuate without management. If active management was initiated, some degree of improvement might be gained by a cycle of draw down management. It is questionable if the benefits would be worth the costs. The Golf Course Association of Milnor, which at one time requested lake water to irrigate portions of the Storm Lake Golf Course, has since found a well water source. The Association was granted a conditional water right, junior to that of the Service.